

## EVOLUTION

Geographic barriers isolate endemic populations of hyperthermophilic archaea

Whitaker, R. J., Grogan, D. W. & Taylor, J. W. *Science* **301**, 976–978 (2003)

It is widely accepted that the distribution of microorganisms is primarily due to ecological and environmental characteristics, and that the only limits to dispersal are environmental. However, using high-resolution multilocus sequence analysis, Whitaker *et al.* have analysed strains of the hyperthermophile *Sulfolobus* isolated from hot springs in the United States, Russia and Iceland and shown that they are clustered according to geographical locale, and that individual populations are isolated by geographical barriers.

## DIAGNOSTICS

Optimization and validation of multilocus sequence typing for *Candida albicans*

Tavanti, A. *et al.* *J. Clin. Microbiol.* **41**, 3765–3776 (2003)

Multilocus sequence typing (MLST), which is based on allelic variation in housekeeping genes, aims to characterize bacterial isolates. Now, Tavanti *et al.* have optimized a MLST system for the opportunistic fungal pathogen *Candida albicans* — an organism that has extra differentiation in its isolates owing to its haploid chromosome — and propose a model MLST system for the identification of *C. albicans* species.

## ARCHAEA

Extending the upper temperature limit for life

Kashafi, K. & Lovley, D.R. *Science* **301**, 934 (2003)

Fe<sup>(III)</sup> electron transport is believed to have been the first form of microbial respiration, and microorganisms using Fe<sup>(III)</sup> as an electron acceptor might provide clues to early microbial life, and the depth to which life can exist in the heat of the Earth's subsurface. Here, Kashafi and Lovley have isolated an Fe<sup>(III)</sup>-using bacterial strain from a hydrothermal vent of the Northeast Pacific Ocean that is capable of growth at 121°C, and which might provide clues to the factors that allow bacterial strains to grow at high temperatures.

## INDUSTRIAL MICROBIOLOGY

Cloning of a nitrilase gene from the cyanobacterium *Synechocystis* sp. PCC6803 and heterologous expression and characterization of the encoded protein

Heinemann, U. *et al.* *Appl. Environ. Microbiol.* **69**, 4359–4366 (2003)

Nitrilases, which hydrolyse organic nitriles to carboxylic acids and ammonia, are useful for many biotransformation processes. However, many known nitrilases are not suitable for industrial use owing, for example, to a low specific activity and instability. Heinemann *et al.* have characterized a new type of nitrilase from *Synechocystis* sp. PCC6803, which hydrolyses the broadest range of nitriles so far, and has potential industrial applications.